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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,481	09/29/2005	Hirotaka Enokida	576P080	4151

42754 7590 10/12/2007

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EXAMINER	
NWAONICHA, CHUKWUMA O	
ART UNIT	PAPER NUMBER
1621	
MAIL DATE	DELIVERY MODE
10/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/551,481	ENOKIDA ET AL.	
	Examiner	Art Unit	
	Chukwuma O. Nwaonicha	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 11* is/are rejected.

7)☒ Claim(s) *8-10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Current Status

Claims 1-11 are pending in the application.

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3, 4 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3 and 11 are rejected because the claim recites "230 to 300°C". The examiner suggests that applicant change "230 to 300°C" to "230 to 300°C". Correction should also be done in the specification.

Claim 4 is rejected because the claim recites "substantially". The word substantially is not defined in the specification. Therefore, the metes and bounds of the claim are unclear.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kameoka et al., {JP 2002030064}.

Applicants claim the production method for 3,3'-diallyl-4,4'-dihydroxydiphenyl sulfone characterized by subjecting 4,4'-diallyloxydiphenyl sulfone to a rearrangement reaction under microwave irradiation at 230 to 300°C; wherein all the other variables are as defined in the claims.

Determination of the scope and content of the prior art (M.P.E.P. §2141.01)

Kameoka et al. teach a method for producing 3,3'-diallyl-4,4'dihydroxydiphenylsulfone by subjecting 4,4'-diallyloxydiphenylsulfone to a thermal (205 to 210°C) rearrangement reaction in the presence of an amine compound in an amount of 0.01 to 1 wt.% and/or an antioxidant in an amount of 0.01 to 1 wt.% based on the 4,4'-diallyloxydiphenylsulfone, while controlling the total amount of alkalis

contained in the 4,4'-diallyloxydiphenylsulfone to 0.50 ppm to yield 3,3'-diallyl-4,4'-dihydroxydiphenylsulfone.

Ascertainment of the difference between the prior art and the claims (M.P.E.P.. §2141.02)

Kameoka et al. process of making 3,3'-diallyl-4,4'- dihydroxydiphenylsulfone differs from the instantly claimed process of making 3,3'-diallyl-4,4'- dihydroxydiphenylsulfone in that applicants' claim a process that employs microwave heat source at 230 to 300°C while Kameoka et al. teach a process that employed conventional heat source at 205 to 210°C. Another difference between applicants claimed invention and the teaching of Kameoka et al. is that applicants' claim a process of making 3,3'-diallyl-4,4'-dihydroxydiphenylsulfone in the absence of oxygen while Kameoka et al. is silent about this condition.

Finding of prima facie obviousness--rational and motivation (M.P.E.P.. §2142-2143)

The instantly claimed process of making 3,3'-diallyl-4,4'-dihydroxydiphenylsulfone would have been suggested to one of ordinary skill because one of ordinary skill wishing to obtain 3,3'-diallyl-4,4'- dihydroxydiphenylsulfone is taught to employ the process of Kameoka et al.

One of ordinary skill in the art would have a reasonable expectation of success in practicing the instant invention by varying the process conditions from the teachings of Kameoka et al. to arrive at the instantly claimed process of making 3,3'-diallyl-4,4'-dihydroxydiphenylsulfone. Said person would have been motivated to practice the

teaching of the reference cited because it demonstrates that 3,3'-diallyl-4,4'-dihydroxydiphenylsulfone is useful as a developing agent for heat-sensitive recording materials. Additionally, the Examiner notes that it has been documented in the literature that organic reactions are carried out with a microwave irradiation to achieve fast rate of reaction, short reaction time, reduced by-product and high product yield. Therefore, the use of microwave irradiation is not a patentable distinction. For example, the following prior arts teach the use of microwave irradiation in chemical reactions: Majetich et al., {The Use of Microwave Heating to Promote Organic Reactions, Journal of Microwave Power and Electromagnetic Energy, 30, 1, 1995, 27-45}, Gedye et al., {The Rapid Synthesis of Organic Compounds in Microwave Ovens II, Can. J. Chem., 66, 1988, 17-26} and Whittaker et al., {The Application of Microwave Heating To Chemical Syntheaes, Journal of Microwave Power and Electromagnetic Energy, 29, 4, 1994, 195-219}. Finally, merely modifying the process conditions such as temperature and concentration is not a patentable modification absent a showing of criticality. In re Aller, 220 F.2d 454, 105 U. S. P. Q. 233 (C. C. P. A. 1955). The instantly claimed invention would therefore have been obvious to one of ordinary skill in the art.

Allowable Subject Matter

Claims 8-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is

571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne (Bonnie) Eyler can be reached on 571-272-0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Patent Examiner
Art Unit: 1621

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